

not use a common actuator for adjusting a variable speed fan and a variable speed pump. However, that is not the end to the deficiencies. This reference also fails to show that the actuator adjusts the fan and pump throughout the entire range of engine operation, as specifically recited in Claim 1. Further, the secondary reference (Stewart, Jr.) also fails to show adjustment throughout the entire range of engine operation a feature as previously argued by Applicant (and which was not contested by the Examiner). Thus, even if these references are combined, Applicants can find no teaching of an actuator that adjusts both a variable speed fan and a variable speed pump over an entire range of engine operation.

In addition, each of the cited references teaches away from the approach taken by Applicants. The approach of SAE paper 2001-01-1742 uses two separate actuators, in contrast to the approach of claim 1 using a common actuator to adjust both a variable speed fan and variable speed pump. Further, as noted in Applicants' specification, the approach of SAE paper 2001-01-1742 fails to recognize the potential synergy that can be obtained by using a common actuator for adjusting both a variable speed fan and variable speed pump. In other words, only Applicants have recognized that the potential restriction of coupling the fan and pump operation may, in actuality, be no restriction at all in terms of achieving improved fuel economy and performance. Such recognition may thus allow improved performance at significantly reduced costs and system complexity. Applicants can find this recognition nowhere in SAE paper 2001-01-1742.

Likewise, Stewart, Jr. clearly teaches away from the approach of Claim 1 in that Stewart, Jr. uses both a mechanically and electronically actuated pump and fan that change actuation depending on engine speed. Specifically, Stewart, Jr. only uses the actuator to control the pump and the fan when the engine speed is under 1500 RPM (see Fig. 8), or when the engine is off (see Fig. 9). When the engine is operating above 1500 RPM, the engine powers the pump while the

Page 2 – AMENDMENT

Serial No. 10/625,759; Record ID 81076411

actuator powers the fan (see Fig. 6), unless the car is traveling at over 60 MPH, when the actuator operates neither the pump nor the fan, the pump is powered by the engine, and the fan powers the actuator to generate electricity (see Fig. 5). Applicants can find nothing in this system that identifies how to eliminate the various complexities and redundant systems, even if it were combined with the system of SAE paper 2001-01-1742. Rather, Steward, Jr. describes an approach that specifically goes against using a common actuator to adjust both a variable speed pump and variable speed fan over an entire range of engine operation.

As such, the rejection of claim 1 should be withdrawn.

Claim 13 recites similar limitations to claim 1, that is, a cooling system for an engine comprising in part a coolant adjusting mechanism and fan adjusted by said actuator throughout the entire range of engine operation. Applicants have reviewed the cited art and again assert that, for the reasons stated above, the rejection should be withdrawn.

Since dependent claims necessarily contain the limitations of claims from which they depend, the rejection of claims 4, 12, and 19-21 should be withdrawn for at least the same reasons as claims 1 and 13.

Claims 2, 3, 5-11, 14-16, 18, and 22 are rejected under 35 USC 103(a) as being unpatentable over admitted prior art of serial number 10/625/759 in view of U.S. Patent No. 5,415,134 (Stewart, Jr.). Applicants respectfully traverse this rejection.

The office action asserts that the claimed subject matter in claims 2, 3, 5-11, 14-16, 18, and 22 is well known in the art and that it would have been obvious to a person having ordinary skill in the art to employ a hydraulic actuator as claimed in claim 2 in lieu of electrical actuator 70 as disclosed by Stewart, Jr. Applicants have reviewed the cited art and have found no disclosure of using a hydraulic actuator as in claim 2 in lieu of an electrical actuator 70 as

Page 3 – AMENDMENT

Serial No. 10/625,759; Record ID 81076411

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disclosed by Stewart, Jr. Applicants object to what appears to be a rejection based on the Examiner's personal knowledge, and request that evidence be made of record to support any rejection, if such a rejection is maintained.

Based on the foregoing comments, the above-identified application is believed to be in condition for allowance, and such allowance is courteously solicited. If any further amendment is necessary to advance prosecution and place this case in allowable condition, the Examiner is courteously requested to contact the undersigned by fax or telephone at the number listed below.

Please charge any cost incurred in the filing of this Amendment, along with any other costs, to Deposit Account No. 06-1510. If there are insufficient funds in this account, please charge the fees to Deposit Account No. 06-1505.

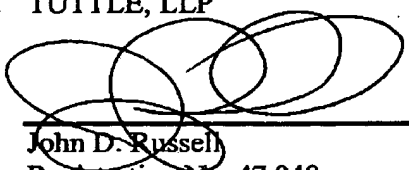
CERTIFICATE OF FACSIMILE

Respectfully submitted,

I hereby certify that this correspondence is being sent to the United States Patent and Trademark Office via facsimile at (571) 273-8300 on March 5, 2007.


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